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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,540	12/15/2000	Jae-Hoon Lee	SAM-134	9736

7590 07/11/2003

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EXAMINER

KANG, DONGHEE

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/737,540

Applicant(s)

LEE ET AL.

Examiner

Donghee Kang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 10-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4&6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. Acknowledgment is made of receipt of applicant's Information Disclosure Statement (PTO-1449) filed April 11 & December 15 2002.

Election/Restrictions

3. Claims 10-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 12.

Claim Objections

4. Claim 1 is objected to because of the following informalities: the phrase "said insulation layer" in line 10 should be "said second insulation layer" to avoid vague because there are two insulation layers, first and second. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims **1-4 & 7-9** are rejected under 35 U.S.C. 102(e) as being anticipated by Ohashi et al. (US 6,184,143).

Re claim 1, Ohashi et al. teach a wiring of a semiconductor device comprising (Fig.1):

a first conductive layer (8) formed on a semiconductor substrate (4); a first insulation layer (11b) formed on said first conductive layer, planarized by a CMP process and having a scratch (11c) on a surface thereof (Col.12, lines 56-63); a second insulating layer (16c) formed on said first insulation layer; a second conductive layer (14) contacting said first conductive layer through a via hole formed in said first and second insulation layers; and a third conductive layer formed in a groove formed in said second insulation layer, wherein said groove has a depth less than a thickness of said insulation layer.

Re claim 2, Ohashi et al. teach said first and second insulation layers are formed from a same insulation material (Col.12, lines 54-56 & Col.13, line 55).

Re claim 3, Ohashi et al. teach said second layer comprising a plug filling said via hole.

Re claim 4, Ohashi et al. teach said first conductive layer is an impurity doped region on said semiconductor substrate (Col.12, lines 19-22).

Re claim 7, Ohashi et al. teach a wiring of a semiconductor device comprising (Fig.1):

a first conductive layer (8) formed on a semiconductor substrate (4); a first insulation layer (11b) formed on said first conductive layer, planarized by a CMP process and having a scratch (11c) on a surface thereof (Col.12, lines 56-63); a second insulating layer (16c) formed on said first insulation layer and having a groove formed thereon; and a second conductive layer formed in said groove, having a thickness thinner than a thickness of said insulation layer.

Re claim 8, Ohashi et al. teach said first and second insulation layers are formed from a same insulation material.

Re claim 9, Ohashi et al. teach said second conductive layer is formed from a material selected from a group consisting of tungsten, aluminum and copper (Col.CO.14, lines 9-11).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al.

Ohashi et al. teach the substantially entire claimed structure, as applied to claim 1 explained above, except for a third insulation layer formed on said second insulation layer and having a fourth conductive layer, contacting said third conductive layer

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through said second via hole. However, Ohashi et al teach in alternate embodiment Fig.61 additional insulation layers having conductive layer formed therein where the conductive layer contacts other conductive layer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form additional insulation layer having conductive layer in order to provide an electrical interconnection, such as bit line or power supply etc.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Donghee Kang

Donghee Kang
Examiner
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dhk
July 3, 2003